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| 09/615,507 | 07/13/2000 | Claude Q.C. Hayes | P-5534-27 | 4652 |

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EXAMINER

BISSETT, MELANIE D

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| ART UNIT | PAPER NUMBER |
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1711

DATE MAILED: 09/11/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/615,507

Applicant(s)

HAYES, CLAUDE Q.C.

Examiner

Melanie D. Bissett

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 60-78 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 60-78 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. The rejections using Hayes and Buckley have been withdrawn based on the applicant's amendment. However, the Tzur rejection has been maintained, and new rejections have been presented.
2. The request filed on 30 July 2003 for Continued Examination under 37 CFR 1.114 based on parent Application No. 09/615,507 is acceptable and an RCE has been established. An action on the RCE follows.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claim 75 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The claim recites the amount of 0.05-6% by weight, where the specification only discloses a broad range of 0.05-60% by weight (p. 4, line 32). The applicant has not pointed out where the specification teaches the preference for an upper limit of 6% by weight.

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5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 60-78 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

7. Claim 60 describes a material having characteristics before and after curing.

Thus, it is unclear whether the flexible thermal control composite itself is a cured composite or whether the applicant intends to claim the composite in an uncured state. For the purposes of this Office action, the examiner will treat the claim as reading "A cured flexible thermal control composite..."

8. Claim 65 recites the limitation "recyclable endothermic agent" in lines 1-2. There is insufficient antecedent basis for this limitation in the claim. For the purposes of this Office action, the examiner will treat claim 65 as dependent on claim 62.

Claim Rejections - 35 USC § 102

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

9. Claims 60-62, 64-65, 68-70, and 77 are rejected under 35 U.S.C. 102(b) as being anticipated by Tzur.

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10. Tzur discloses flexible thermal control composites comprising endothermic hydrated inorganic salt powder and a polymeric binder (example 6). Tzur teaches that some of the materials will undergo a phase change after the melting the inorganic material that could result in the separation of the hydrated salt into an anhydrous salt and its water of hydration (column 15, lines 61-65). The inorganic material undergoes a phase change during heating and cooling, thus indicating a phase change material. Since the unseparated, hydrated inorganic material could be reused, it is thought to be recyclable. Examples teach the use of hydrated epsom salts and other claimed inorganic salts while also teaching natural and synthetic rubber binders. For example, neoprene latex polymers are included in several examples (Stage 1, column 9; examples). Furthermore, silicone rubber and polyesters are noted (example 6). Tzur also teaches the need for folded metal mesh or woven ceramic cloth as a structural means for the composite, thus providing a thermally conductive material in contact with the composite (column 3, line 65-column 4, line 2; Figure 4).

11. Regarding the distribution of the agents within the molecular structures of a binder, it is noted that the salts are distributed throughout the binder material and cured (example 6). By this description, it is the examiner's position that Tzur's materials would inherently possess the applicant's claimed distribution structure.

12. Claims 60, 62-71, and 73 are rejected under 35 U.S.C. 102(e) as being anticipated by Zuckerman et al.

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13. Zuckerman discloses a coating composition for fabrics containing a polymeric binder with microspheres dispersed therein (abstract). The microspheres are phase change materials, preferably high molecular weight hydrocarbons (abstract), while binder materials include latex materials (col. 4 line 62-col. 5 line 3). The coatings are dried and cured to form a coating film. Since the coatings are cured after dispersion of the microspheres within the polymeric material, it is the examiner's position that the dried film would inherently possess the applicant's claimed distribution structure. The examples indicate coating weights of the applicant's claimed range (see example II, 2.5 oz/yd² = ~0.055 g/in²). Note that the high molecular weight hydrocarbon materials are listed by the applicant as recyclable endothermic agents.

14. Claims 60, 69-71, and 74-75 are rejected under 35 U.S.C. 102(b) as being anticipated by Salyer et al.

15. Salyer discloses a polymeric composition comprising a polymeric material and a polyethylene glycol phase change material, where the phase change material is dispersed within the polymer to form a molded or coated material (abstract; col. 2 lines 30-45). The phase change materials are readily dispersed in polar polymers, suggesting molecular interaction between the polymer and the phase change material (col. 5 lines 16-16). Also, preferred polymer materials include polyesters, acrylate rubbers, and neoprene (col. 5 lines 19-32). The polymer binder is preferably cured after the phase change material is dispersed (col. 5 lines 33-50); thus, it is the examiner's position that the materials of Salyer's invention inherently possess the applicant's

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claimed distribution structure. Salyer teaches that amounts of 1-50% by weight of the phase change material are preferred for the invention, although no lower limit is necessary (col. 5 lines 57-65). Coatings including the materials are evaporated to form films (col. 6 lines 51-62).

Claim Rejections - 35 USC § 103

16. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

17. Claims 63 and 66-67 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tzur.

18. Tzur applies as above, failing to specify the particle sizes (i.e. "micronized") of the inorganic powders used in the invention. However, the term "powder" as used in the reference indicates very small particle diameter. It is the examiner's position that it would have been prima facie obvious to use the inorganic powder having any desired particle size to optimise the thermal properties of the composite.

19. Claim 77 is rejected under 35 U.S.C. 103(a) as being unpatentable over Zuckerman et al.

20. Zuckerman applies as above, preferring the use of latex binders but not exemplifying the use of polysilicone. Although silicone materials are not the most

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preferred binder material, silicone materials are noted as binders of use in the invention (col. 4 lines 13-21). Thus, it would have been prima facie obvious to choose silicone materials for the binder with the expectancy of forming a coating having adequately improved heat control or storage.

Allowable Subject Matter

21. Claims 76 and 78 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

22. The following is a statement of reasons for the indication of allowable subject matter:

23. The closest prior art, Zuckerman et al., discloses heat control coatings for fabric materials comprising a polymeric binder and a dispersed microspheric phase change material. However, the reference does not indicate the use of fluoroelastomers or boric acid materials. Thus, it is the examiner's position that the use of such materials in the applicant's claimed composite structure would provide a novel and unobvious step over the prior art.

Response to Arguments

24. Regarding the applicant's arguments that Tzur does not teach the applicant's claimed distribution structure, it is noted that it is the examiner's position that the resultant materials of Tzur's invention would inherently possess the claimed

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characteristics. The applicant has not sufficiently shown that the materials of Tzur would not have the same end structural characteristics as those of the claimed invention. Tzur disperses endothermic agents into a polymeric matrix and cures the material. From this description, one of ordinary skill in the art would envision the agents dispersed and intertwined within the molecular structures of the high molecular weight polymer binders.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melanie D. Bissett whose telephone number is (703) 308-6539. The examiner can normally be reached on M-F 8-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on (703) 308-2462. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

mdb


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